

ABSTRACT OF THE DISCLOSURE

An automatic transfer switch system controls switching of power from a main source (utility power) to a backup source (generator) by using a state machine controller and low cost relay switches housed in a single electrical panel. The low power automated transfer switch system is well-suited for residential use and is less expensive and easier to install than conventional automatic transfer switches. The key to a low cost transfer switch is delivering power with low cost relays. This is accomplished by employing relay drive techniques that enable these devices to survive rigorous standards compliance testing. Preferably, the state machine controller measures utility and generator source compliance using an optical coupling arrangement, rather than a transformer. The automated transfer switch disconnects the utility and generator means through a circuit breaker providing for fast protection. The relay drive techniques disclosed provide a form of an electrical interlock. This is a key feature when seeking compliance standard approval. Essentially, an automated transfer system should not continuously be capable of backfeeding power from generator to utility, and the electrical interlock of the relays as taught by this invention prevents any such backfeeding.

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